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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,120	06/16/2005	Toshio Ohkoshi	050391	8989

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EXAMINER	
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ART UNIT	PAPER NUMBER
1792	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/539,120	OHKOSHI ET AL.	
	Examiner	Art Unit	
	Elena Tsoy Lightfoot	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/16/05, 9/13/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Momose et al (JP 2001062391).

Momose et al discloses method of forming a brilliant multilayer coating film on an aluminum wheel, comprising applying to an aluminum wheel a colored clear primer *powder*-coating layer containing a *thermosetting* resin (See P32) **preferably** *polyester* or *acryic* resin (See P17), *cross-linking agent* (See P12) and a pigment such as alumina flakes, colored aluminum flakes, mica, titanium metal flakes, silica flakes, graphite, stainless steel flakes, platy iron oxide, and micaceous iron oxide (See P20) (claimed lustrous powder base coating composition a), baking the resulting coat layer (See P42); applying a hologram pigment containing brilliant *powder* coating material layer containing *thermosetting polyester* or *acrylic resin* (claimed clear powder coating composition b) (See P26) and a top clear coating layer (See Abstract) and baking the applied layers to obtain a brilliant multilayer coating film (See P44).

Momose et al does not expressly teach claimed combination of polyester layer a and acrylic layer b. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used *polyester* clear primer coating layer and *acrylic* brilliant powder coating layer in Momose et al with the expectation of providing the desired

brilliant multilayer coating film since Momose et al does not limit its teaching to a particular combination of resin layers.

3. Claims 1, 2 and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onishi et al (JP 11300271) in view of Momose et al.

Onishi et al discloses a method of forming a multilayer coating film by coating a metal substrate such as *aluminum wheel* (See P7) with an epoxy resin powder coating composition, followed by heating, and then coating the coated substrate with a powder coating composition such as a thermosetting *acrylic* resin powder coating composition, followed by heating (See Applicants' Published Application, P5). Onishi et al fails to teach that polyester powder coating composition containing a lustrous pigment is used instead of epoxy resin powder coating composition providing lustrous coating film (See Applicants' Published Application, P5).

Momose et al teaches that a brilliant multilayer coating film on aluminum wheel may be formed using two powder coating layers: a first layer of a powder coating composition containing a resin such as *epoxy resin*, **polyester** resin or acrylic resin (See P12) and a lustrous pigment (See Abstract) such as alumina flakes, colored aluminum flakes, mica, titanium metal flakes, silica flakes, graphite, stainless steel flakes, platy iron oxide, and micaceous iron oxide (See P20), and a second layer of a powder coating material layer containing a hologram pigment and a thermosetting *polyester* or *acrylic resin* (See P26).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used **polyester** powder coating composition containing a lustrous pigment for forming a first layer in Onishi et al instead of epoxy resin powder coating composition and a

second acrylic layer containing a hologram pigment, with the expectation of providing the desired a brilliant multilayer coating film, as taught by Momose et al.

As to claims 8-12, Onishi et al teaches that the acrylic resin is epoxy acrylate resin (glycidyl methacrylate/styrene/methyl methacrylate/n-butyl methacrylate = 40/10/20/30) having M.W. of 8000 and softening point of 85^{0}C (See P40) and a polycarboxylic acid crosslinking agent (See P19-20) such as *adipic acid* (See P20) in a ratio of 10-100 parts per 100 parts of the resin (See P21) is suitable for coating aluminum wheel (See P7). Since the epoxy equivalent is defined in the art as the molecular weight per epoxy group, it seems that the epoxy acrylate resin of Onishi et al has the epoxy equivalent of about 299.

As to claimed ratio range, note that in Onishi et al, the ratio of the polycarboxylic acid crosslinking agent to resin of 10-100 parts per 100 parts of the resin overlaps claimed ranges. Overlapping ranges are *prima facie* evidence of obviousness. *In re Malagari*, 184 USPQ 549 (CCPA 1974). Therefore, it would have been obvious to one having ordinary skill in the art to have selected the portion of Onishi et al's ranges that corresponds to the claimed range.

4. Claims 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Momose et al or Onishi et al (JP 11300271) in view of Momose et al, as applied above, and further in view of Geary et al (US 4801680).

Momose et al fails to teach that the primer powder base coating composition (a) comprises a carboxyl-containing polyester resin as a base resin and a beta-hydroxyalkylamide as a crosslinking agent (Claim 3) in a ratio of beta-hydroxyalkylamide to carboxyl-containing polyester resin such that the number of beta-hydroxyalkylamide hydroxyl groups is about 1.2 to about 1.6 per polyester resin carboxyl group (Claim 7), wherein the polyester resin is a polyester

polycarboxylic acid resin having weight average molecular weight of about 500 to about 50,000 (Claim 5), a softening temperature of about 50^0C to about 140^0C (Claim 6) and an acid value of about 10 to about 100 KOH mg/g of resin (Claim 4).

Geary et al teaches that a thermosetting powder coating composition comprising carboxylic acid group-containing polyester having weight average molecular weight of about 300 to about 1,200 (See column 4, lines 14-25), a Tg of from about 30^0C to about 85^0C. and an acid number of from about 20 to about 80, and a beta-hydroxyalkylamide curing agent (See column 1, lines 34-39) cure at significantly lower temperatures than prior art compositions with triglycidyl isocyanurate as a curing agent (See column 1, lines 20-27) and give resultant coatings with good exterior durability plus a good blend of other physical properties such as appearance, hardness, impact resistance and chemical resistance (See column 1, lines 40-45) when applied directly onto *aluminum* substrate (See column 5, lines 36-37). To bring about the most effective cure of the powder coating composition, the equivalent ratio of beta-hydroxyalkylamide (hydroxy equivalents) to carboxy-containing polyester (carboxylic acid equivalents) is preferably from about 0.6 to 1.6:1, more preferably from 0.8 to 1.3:1 (See column 3, lines 10-15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a thermosetting powder coating composition of Geary et al for forming the primer powder base coating composition of Momose et al with the expectation of providing the desired good exterior durability plus a good blend of other physical properties such as appearance, hardness, impact resistance and chemical resistance, as taught by Geary et al.

As to claimed ranges, note that M.W., OH:COOH ratio and Tg ranges in Geary et al overlap claimed ranges. Overlapping ranges are *prima facie* evidence of obviousness. *In re*

Malagari, 184 USPQ 549 (CCPA 1974). Therefore, it would have been obvious to one having ordinary skill in the art to have selected the portion of Geary et al's ranges that corresponds to the claimed ranges.

5. Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Momose et al in view of Onishi et al.

Momose et al teaches that the *acrylic* resin may contain *glycidyl* groups (See P17), i.e. epoxy acrylate resin may be used as the *acrylic* resin. However, Momose et al fails to teach that the crosslinking agent is a polycarboxylic acid and/or anhydride thereof (Claim 8); the epoxy-containing acrylic resin has: an epoxy equivalent of about 200 to about 800 (Claim 9), a weight average molecular weight of about 1,000 to about 10,000 (Claim 10), a softening temperature of about 50^0C to about 140^0C (Claim 11), the ratio of polycarboxylic acid and/or anhydride thereof to epoxy-containing acrylic resin is such that the total number of carboxyl groups and anhydride groups thereof in the polycarboxylic acid and/or anhydride thereof is about 0.6 to about 0.9 per acrylic resin epoxy group (Claim 12).

Onishi et al teaches that a powder coating composition comprising epoxy acrylate resin (glycidyl methacrylate/styrene/methyl methacrylate/n-butyl methacrylate = 40/10/20/30) having M.W. of 8000 and softening point of 85^0C (See P40) and a polycarboxylic acid crosslinking agent (See P19-20) such as *adipic acid* (See P20) in a ratio of 10-100 parts per 100 parts of the resin (See P21) is suitable for coating aluminum wheel (See P7). Since the epoxy equivalent is defined in the art as the molecular weight per epoxy group, it seems that the epoxy acrylate resin of Onishi et al has the epoxy equivalent of about 299.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used epoxy acrylate powder coating composition of Onishi et al as acrylic powder coating composition of Momose et al with the expectation of providing the desired brilliant multilayer coating film since Onishi et al teaches that the epoxy acrylate powder coating composition is suitable for coating aluminum wheel and Momose et al does not limit its teaching to a particular epoxy acrylate powder coating composition.

It is held that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07.

As to claimed ratio range, note that in Onishi et al, the ratio of the polycarboxylic acid crosslinking agent to resin of 10-100 parts per 100 parts of the resin overlaps claimed ranges. Overlapping ranges are *prima facie* evidence of obviousness. *In re Malagari*, 184 USPQ 549 (CCPA 1974). Therefore, it would have been obvious to one having ordinary skill in the art to have selected the portion of Onishi et al's ranges that corresponds to the claimed range.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Franks et al (US 5212245) is cited here to show that it is well known in the art to use an epoxy resin such as an **epoxy group-containing acrylic** polymer and a suitable curing agent for the epoxy resin such as a *polyfunctional carboxylic acid group*-containing material carboxylic acid functional resins such as **carboxylic acid functional polyesters** and suitable curing agents for such materials such as triglycidyl isocyanurate and *beta-hydroxyalkylamide* curing agents as

described, for example, in U.S. Pat. No. **4,801,680** (See column 2, lines 18-34) to apply directly to *aluminum* substrate (See column 4, lines 64-66).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy Lightfoot whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Friday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy Lightfoot, Ph.D.
Primary Examiner
Art Unit 1792

September 16, 2008

/Elena Tsoy Lightfoot/